The invention claimed is:

1. An optical package comprising:

a first ferrule having a capillary extending axially through said ferrule, said capillary satisfying a predetermined tolerance for the dimensions of said capillary;

at least two single mode optical fibers extending through said capillary;

a second ferrule having a second capillary extending axially through said second ferrule and satisfying a predetermined tolerance for the dimensions of said second capillary; and

at least four optical polarization maintaining fibers optically coupled to said single mode optical fibers, said polarization maintaining fibers positioned inside of said second capillary, said polarization maintaining fibers satisfying predetermined tolerances.

2. The optical package of claim 1 wherein said single mode fibers comprise a first single mode fiber and a second single mode fiber, and wherein said polarization maintaining fibers comprise a first and a second pair of polarization maintaining fibers and wherein said first single mode fiber is optically coupled to said first pair of polarization maintaining fibers and said second single mode fiber is optically coupled to said second pair of polarization maintaining fibers.

3. The optical package of claim 2 wherein the splitting planes of said first and second pair of polarization maintaining fibers are substantially parallel.

4. The optical package of claim 3 wherein the splitting planes of said first and second pair of polarization maintaining fibers are parallel within a tolerance of two degrees.

5. The optical package of claim 2 wherein the configuration of said second capillary is selected from the group consisting of a rounded square, a rounded rectangle, a butterfly, a flower, a two-wafer type formed from two wafers comprising matching grooves which

form capillaries when the wafers are aligned, and a capillary comprising at least one alignment washer.

6. The optical package of claim 5 wherein the configuration of said first capillary is selected from the group consisting of a rounded rectangle, an oval, dual capillaries, a two-wafer capillary, and a capillary comprising at least one alignment washer.

7. The optical package of claim 2 wherein the single mode fibers define a first separation distance and the two pairs of polarization maintaining fibers define a second separation distance and wherein the separation distances are equal within a tolerance of 1.0 μm.

8. The optical package of claim 7 wherein the separation distances are equal within a tolerance of 0.5 μm.

9. The optical package of claim 2, wherein the tolerance for the walls of said capillaries is less than about +/- 2.0 μm.

10. The optical package of claim 9, wherein the tolerance of said capillaries is less than about +/- 1.0 μm.

11. The optical package of claim 10, wherein the tolerance of said capillaries is less than about +/- 0.5 μm.

12. The optical package of claim 2 wherein the tolerances for said polarization maintaining fibers are selected from the group consisting of core concentricity, diameter, and ovality.

13. The optical package of claim 12 wherein the tolerance for said core concentricity is 1.0 µm, the tolerance for the diameter is 1.0 µm, and the tolerance for the ovality is 0.8 percent.

14. The optical package of claim 13, wherein the tolerance for said core concentricity is 0.5 µm, the tolerance for diameter is 0.5 µm, and the tolerance for ovality is 0.4 percent.

15. The optical package of claim 14, wherein the tolerance for said core concentricity is 0.1 µm, the tolerance for diameter is 0.1 µm, and the tolerance for ovality is 0.12 percent.

16. The optical package of claim 2 wherein the tolerances for said single mode fibers is selected from the group consisting of core concentricity, diameter, and ovality.

17. The optical package of claim 16 wherein the tolerance for said core concentricity is 1.0 µm, the tolerance for the diameter is 1.0 µm, and the tolerance for ovality is 0.8 percent.

18. The optical package of claim 17, wherein the tolerance for said core concentricity is 0.5 µm, the tolerance for diameter is 0.5 µm, and the tolerance for ovality is 0.4 percent.

19. The optical package of claim 18, wherein the tolerance for said core concentricity is 0.1 µm, the tolerance for diameter is 0.1 µm, and the tolerance for ovality is 0.12 percent.

20. The optical package of claim 1 further comprising a birefringent block positioned between said single mode fibers and said polarization maintaining fibers such that light passing between the single mode fibers and the polarization maintaining fibers pass through said birefringent block.

21. The optical package of claim 20 wherein said birefringent block is selected from the group consisting of a prism, a combiner-isolator block, a splitter-isolator block, and an isolator block.

22. The optical package of claim 21 wherein said birefringent block is a Wollaston prism

23. The optical package of claim 22 wherein the birefringent block comprises two birefringent wedged crystals and Faraday rotator plate positioned between the wedged crystals.

24. A method of manufacturing an optical package comprising the steps of:

providing two single-mode fibers satisfying predetermined tolerances;

providing a first ferrule comprising at least one capillary extending through said ferrule, said at least one capillary satisfying predetermined tolerances;

inserting said fibers into said at least one capillary;

providing two pairs of polarization-maintaining fibers satisfying predetermined tolerances;

providing a second ferrule comprising a second capillary extending through said ferrule, said second capillary in said second ferrule satisfying predetermined tolerances;

inserting said polarization-maintaining fibers into said second capillary; and

optically aligning at least one of said single mode fibers with a pair of said polarization-maintaining fibers.

25. The method of claim 24 wherein the configuration of said second capillary is selected from the group consisting of a rounded square, a rounded rectangle, a butterfly, a flower, a two-wafer type formed from two wafers comprising matching grooves which form capillaries when the wafers are aligned, and a capillary comprising at least one alignment washer.

26. The method of claim 24 wherein the configuration of said first capillary is selected from the group consisting of a rounded rectangle, an oval, dual capillaries, a two-wafer capillary, and a capillary comprising at least one alignment washer.

27. The method of claim 24 wherein the single mode fibers define a first separation distance and the two pairs of polarization maintaining fibers define a second separation distance and wherein the separation distances are equal within a tolerance of 1.0 µm.

28. The method of claim 27 wherein the separation distances are equal within a tolerance of 0.5 µm.

29. The method of claim 24, wherein the tolerance of said capillaries is less than about +/- 2.0 µm.

30. The method of claim 29 wherein the tolerance of said capillaries is less than about +/- 1.0 µm.

31. The method of claim 30 wherein the tolerance of said capillaries is less than about +/- 0.5 µm.

32. The method of claim 24 wherein the tolerances for said polarization maintaining fibers are selected from the group consisting of core concentricity, diameter, and ovality.

33. The method of claim 32 wherein the tolerance for said core concentricity is 1.0 µm, the tolerance for the diameter is 1.0 µm, and the tolerance for ovality is 0.8 percent.

34. The method of claim 32 wherein the tolerance for said core concentricity is 0.5 µm, the tolerance for diameter is 0.5 µm, and the tolerance for ovality is 0.4 percent.

35. The method of claim 32, wherein the tolerance for said core concentricity is 0.1 μm, the tolerance for diameter is 0.1 μm, and the tolerance for ovality is 0.12 percent.

36. The method of claim 24 wherein the tolerances for said single mode fibers is selected from the group consisting of core concentricity, diameter, and ovality.

37. The method of claim 36 wherein the tolerance for said core concentricity is 1.0 μm, the tolerance for the diameter is 1.0 μm, and the tolerance for ovality is 0.8 percent.

38. The method of claim 36 wherein the tolerance for said core concentricity is 0.5 μm, the tolerance for diameter is 0.5 μm, and the tolerance for ovality is 0.4 percent.

39. The method of claim 36 wherein the tolerance for said core concentricity is 0.1 μm, the tolerance for diameter is 0.1 μm, and the tolerance for ovality is 0.12 percent.

40. The method of claim 24 further comprising a prism positioned between said single mode fibers and said polarization maintaining fibers such that light passing between the single mode fibers and the polarization maintaining fibers pass through said prism.

41. The method of claim 40 wherein said prism is selected from the group consisting of a combiner-isolator block, a splitter-isolator block, and an isolator block.

42. The method of claim 40 wherein said prism is a Wollaston prism.

43. The method of claim 41 wherein the prism comprises two birefringent wedged crystals and Faraday rotator plate positioned between the wedged crystals.

44. The method of claim 24 further comprising the steps of:

providing a prism holder;

placing the prism on the seat of the prism holder; and

applying liquid adhesive adjacent to the border of the prism and the prism holder such that said adhesive is drawn between the surfaces of the prism and the prism holder.

45. A multi-channel optical package comprising:

an input ferrule having a first capillary extending axially through said ferrule, said capillary satisfying a predetermined tolerance for the dimensions of said capillary;

at least two input optical fibers extending through said input ferrule;

an output ferrule having a second capillary extending axially through said output ferrule and satisfying a predetermined tolerance for the dimensions of said second capillary;

at least four output optical fibers extending through said output ferrule, said output fibers; and

a birefringent block positioned between said input and output ferrules such that light signals input via said input fibers are processed by said block and directed to said output fibers.

46. The multi-channel optical package of claim 45 wherein said output fibers are polarization-maintaining fibers.

47. The multi-channel optical package of claim 45 wherein said birefringent block is selected from a group consisting of an isolator, a combiner-splitter, a combiner-isolator, and a splitter-isolator.

48. The multi-channel optical package of claim 46 wherein the splitting planes of said polarization-maintaining fibers are substantially parallel.

49. The multi-channel optical package of claim 48 wherein the splitting planes of said polarization-maintaining fibers are parallel within a tolerance of two degrees.

50. A birefringent optical package comprising:

an input ferrule having a first capillary extending axially through said ferrule, said capillary;

at least two input optical fibers extending through said input ferrule and secured in position within a predetermined tolerance;

an output ferrule having a second capillary extending axially through said output ferrule and satisfying;

at least four output optical fibers extending through said output ferrule and secured in position within a predetermined tolerance; and

a birefringent block positioned between said input and output ferrules such that light signals input via said input fibers are processed by said block and directed to said output fibers.

51. The birefringent optical package of claim 50 wherein the tolerance for the position of said input optical fibers is 2.0 μm.

52. The birefringent optical package of claim 50 wherein the tolerance for the position of said input optical fibers is 1.0 μm.

53. The birefringent optical package of claim 50 wherein the tolerance for the position of said input optical fibers is 0.5 μm.

54. The birefringent optical package of claim 50 wherein the tolerance for the position of said output optical fibers is 1.0 μm.

55. The birefringent optical package of claim 50 wherein at least one of said input and output optical fibers is a polarization-maintaining fiber.